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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,452	03/31/2004	Jiewen Liu	80107.160US1	5473

7590 12/28/2006		
LeMoine Patent Services, PLLC c/o PortfolioIP P.O. Box 52050 Minneapolis, MN 55402	EXAMINER	
	LA, NICHOLAS T	
	ART UNIT	PAPER NUMBER
	2617	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
	10/814,452	LIU ET AL.
Office Action Summary	Examiner	Art Unit	
	Nicholas T. La	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 December 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) <u>2,3,5,9-11,18,19,25 and 27</u> is/are withdrawn from consideration.

5)☒ Claim(s) <u>1,4,6 and 7</u> is/are allowed.

6)☒ Claim(s) <u>8,12-17 and 20-24</u> is/are rejected.

7)☒ Claim(s) <u>26</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the

fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection.

Since this application is eligible for continued examination under 37 CFR 1.114,

and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the

previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 12/01/2006 has been entered.

Claims 1, 4-8, 12-17, 21-24, 26 are pending.

Claims 2-3, 5, 9-11, 18-19, 25, 27 are cancelled.

Response to Arguments

Applicant's arguments with respect to claims 1, 8, 15, 24, 21 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

2)   Claims 8, 12-17, 20-23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over van Bokhorst et al. (US Patent No. 6,192,230) and further in

view of Heiman et al. (US Patent No. 6,002918).

Regarding **claims 8, 21, 15,** van Bokhorst et al. further teaches a method

comprising:

evaluating traffic activity at the radio interface, setting a power saving level

for the radio interface based on the traffic activity (Figure 6, col. 17 to col. 62);

determining a desired sleep interval as a number of TIM intervals (see

Figure 6, col. 5, line 18 to 29) to sleep to save power (col. 4, line 27 to 39), based

on a volume of data traffic as a percentage of a current time interval (col. 9, line

65 to col. 10, line 20);

determining a next broadcast time to wakeup to receive packets from an

access point (col. 4, line 27 to line 52; col. 5, line 30 to 62);

setting a wake up time based on the desired sleep interval and the

broadcast time (col. 5, line 17 to 30);

sleeping until the wake up time (col. 5, line 17 to 30);

waking to receive a TIM message (col. 5, line 17 to 30);

Van Bokhorst et al. further setting a desired sleep interval as a number of

beacon (see Figure 6, col. 5, line 18 to 29), however, van Bokhorst et al. does

not expressly teach a method, wherein desired sleep interval is set as plurality of

802.11 compliant beacon interval and if no 802.11 compliant beacon is received,

sleeping for one additional 802.11 compliant beacon interval. In an analogous

art, Heiman et al. teaches wherein desired sleep interval is set as plurality of

802.11 compliant beacon interval and if no 802.11 compliant beacon is received,

sleeping for one additional 802.11 compliant beacon interval (col. 11, line 23 to

58; col. 12, line 13 to 21). Therefore, it would have been obvious to one ordinary

skilled in the art at the time of the invention was made to modify van Bokhorst et

al. to include wherein desired sleep interval is set as plurality of 802.11 compliant

beacon interval and if no 802.11 compliant beacon is received, sleeping for one

additional 802.11 compliant beacon interval such as taught by Heiman et al. in

order to permits a fast recovery form message errors, and also helps to detect

that the access point is or not transmitting beacons in a minimum amount of time.

Regarding **claim 12**, Heiman et al. further teaches a method, wherein

determining a broadcast time comprising examining a Traffic Indication Map

element within an 802.11 compliant beacon (col. 11, line 23 to 31).

Regarding **claims 13, 14**, Bokhorst et al. further teaches a method,

wherein setting a wake-up time comprises setting the wake up time to the end of

one desired sleep interval when the broadcast time is more than two desired

sleep interval in the future (see Figure 6, at the end of 130-1the mobile wakes up

upon determining the broadcast time is more than two desired sleep intervals in

the future 142, 148, 152), and setting the wake-up time to the broadcast time

when the broadcast time is less than two desired sleep intervals in the future

(see Figure 6, at the end of 132-1 is also when the broadcast time starts when

the broadcast time ids less than two desired sleep intervals in the future, the

mobile wakes up to receive broadcast message).

Regarding **claims 16, 17,** van Bokhorst et al. further teaches a method,

wherein evaluating traffic activity comprises determining a percentage of traffic

time over a time interval and the power saving level may be set differently each

time the traffic activity is evaluated (Figure 9, 10; col. 9, 65 to col. 10, line 20).

Regarding **claim 20**, Hieman et al. further teaches a method, wherein

setting a sleep time comprises determining a number of beacon intervals for the

mobile station to sleep by comparing a desired sleep interval with a delivery

Traffic Indication Message (DTIM) count (col. 11, line 23 to col. 12, line 20).

Regarding **claims 22, 23**, Heiman et al. further teaches an apparatus

comprising a mobile computer and a network interface card (see Figure 1, 2, col.

1, line 28 to 48).

3)   **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over

van Bokhorst et al. (US Patent No. 6,192,230) in view of Heiman et al. (US

Patent No. 6,002, 981) and further in view of Ciccone (US Patent No. 6,078,819).

Regarding **claim 24**, van Bokhorst et al. further teaches an electronic

system comprising:

an antenna (Figure 2; element 22);

a radio interface coupled to the antenna (Figure 2, element 30 as wireless transceiver interface);

a processor couple to the radio interface (Figure 2, element 34); and

a static random access memory (Figure 2, element 36) with instruction stored thereon that when accessed, result in the processor performing:

evaluating traffic activity at the radio interface, setting a power saving level for the radio interface based on the traffic activity (Figure 6, col. 17 to col. 62),

determining a power saving level for the mobile station based on power saving level (Figure 9, 10; col. 9, 65 to col. 10, line 20);

setting sleep time associated with the power saving level (Figure 6, col. 17 to col. 62), putting the radio interface to sleep for the sleep time (Figure 6, col. 17 to col. 62), waking the radio interface to receive a beacon signal (Figure 6, col. 17 to col. 62).

Van Bokhorst et al. further setting a desired sleep interval as a number of beacon (see Figure 6, col. 5, line 18 to 29), however, van Bokhorst et al. does not expressly teach a method, wherein desired sleep interval is set as plurality of 802.11 compliant beacon interval and if no 802.11 compliant beacon is received, sleeping for one additional 802.11 compliant beacon interval. In an analogous art, Heiman et al. teaches wherein desired sleep interval is set as plurality of beacon interval and if no beacon signal is received, sleeping for one additional 802.11 compliant beacon interval (col. 11, line 23 to 58; col. 12, line 13 to 21). Therefore, it would have been obvious to one ordinary skilled in the art at the

time of the invention was made to modify van Bokhorst et al. to include wherein

desired sleep interval is set as plurality of 802.11 compliant beacon interval and if

no 802.11 compliant beacon is received, sleeping for one additional 802.11

compliant beacon interval such as taught by Heiman et al. in order to permits a

fast recovery form message errors, and also helps to detect that the access point

is or not transmitting beacons in a minimum amount of time.

Van Bokhorst et al. and Heiman et al. does not expressly teach a system

comprising a plurality of antennas. In an analogous art, Ciccone et al. teaches

an apparatus and method for prolong battery life in a portable telephone having

first and second deactivating conditions. Ciccone et al. further teaches a system

apparatus comprising a plurality of antennas (Figure 2, element 140, 145; col. 6,

line 2 to 23). Therefore, it would have been obvious to one ordinary skilled in the

art at the time of the invention was made to modify Bokhorst et al. and Heiman et

al. system to include using a plurality of antennas to allow selections of which

with the strongest signal for use or combining of signals for the purpose of

providing quality of service to system.

Allowable Subject Matter

4)   **Claims 1, 4, 6-7** are allowed.

Below are the reasons for allowance.

Van Bokhorst et al., Romans, Heiman et al though teach power saving

wherein mobile stations are synchronized to be in an awake state to receive

synchronizing messages and traffic indicator information and are changed to a

sleep mode if they are not to receive messages. Vook et al. (US Patent No.

5,583,866) teaches method for delivering broadcast packets in a frequency

hopping local area network, further teaches determining broadcast time as a

number of beacon intervals so user devices could expect to receive the

broadcast beacon at predictable intervals and could schedule their sleep and

wakeup time correspondingly (col. 17, table 2; col. 19, line 12 to col. 20, line 11)

however, the cited references fail to teach "wherein the wake up time is set to the

end of the desired sleep interval if at least two desired sleep intervals exist before

the next broadcast time" (see Application, Figure 5; desired sleep interval is two

beacon intervals, broadcast time interval is five beacon intervals, for instance;

Applicant's argument, Remarks dated 09/25/2006, page 8). Therefore, claims 1,

4, 6, 7 are allowed.

5)   Claim 26 is objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims. Please see reason for

allowance in item 4.

Conclusion

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Nicholas T. La whose telephone number is

(571)-272-8075. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nicholas La
12/13/2006

LESTER G. KINCAID
SUPERVISORY PRIMARY EXAMINER